

A NEW HAWKMOTH FROM QUINTANA ROO, MÉXICO

VERNON ANTOINE BROU, JR.¹

Rt. 1, Box 74, Edgard, Louisiana 70049 USA

ABSTRACT. A new species of *Manduca* Hubner is described in its adult stage. This species is similar in maculation to *Manduca morelia* (Druce) and *M. pellenia* (Herrich-Schäffer). Differences in size, wing shape and genitalia prove it to be distinct.

Manduca wellingi, new species

(Figs. 1-5)

Wing length. Males: 41 mm (35-44 mm, n = 64); females: 46 mm (44-50 mm, n = 10). *M. wellingi* two-thirds size of *morelia* (Druce). Rothschild and Jordan (1903:79) treated *morelia* as being synonymous with *pellenia* (Herrich-Schäffer). A review of the original description of *morelia* makes it clear that this is incorrect.

Wing maculation and shape. Color and maculation of *wellingi* very similar to those of *morelia*. Both species show about same degree of color variation when series compared. Forewing of *wellingi* light, sandy brown to tawny, with confluent series of black lustrous patches in median space, forming large, semicircular band, ends of which intersect costal

¹ Research Associate, Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services.



FIG. 1. *Manduca wellingi*, n. sp. Holotype, male, Nuevo X-cán, Quintana Roo, México. 27 Sept. 1981 (E. C. Welling M.; U.S. N.M.N.H.).

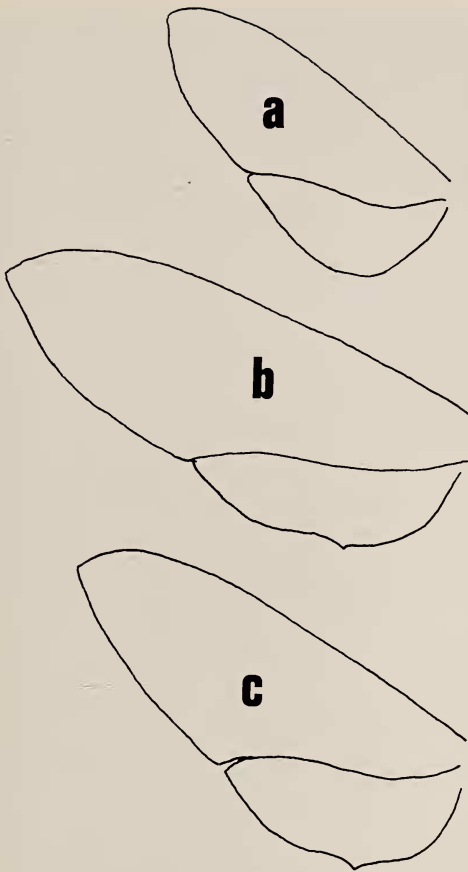


FIG. 2. Wing outline comparison of males (a) *Manduca wellingi*, (b) *Manduca morelia*, (c) *Manduca pellenia*.

margin. Most evident are crescent shaped, off-white stigma, distinct, oblique, zig-zag, black apical dash, crenulate subterminal line that essentially parallels postmedial band, which, as in *morelia*, consists of two, closely parallel lines. Both postmedial and antemedial bands double and may appear triple as they are paralleled on side toward median space by usually less distinct, diffuse, mesial lines. Base pale, with one or two minute tufts of nearly white scales, enclosed by dark basal band that may be bisected by short, diffuse basal dash. Basal space with dark spot near middle. Nearly black hindwing crossed by two pale bands corresponding in position to antemedial and postmedial. Outer one runs from anal angle to costal margin just beyond middle, and inner one is small curved band enclosing black basal area. Light-brown outer margin becomes obscured distally. Forewing beneath is dark gray. In males, entire dark ventral surface heavily sprinkled with light-brown scales except for outer marginal band where light colored scales are wanting. Hindwing below exhibits same features, although light-brown scales dominate entire surface to much greater degree. Dark outer marginal band present and more distinct than on forewing. In females, amount of light-brown scales greatly reduced or



FIG. 3. Genitalia, *Manduca wellingi*, male.

nearly absent on underside of forewing, and outer marginal band is hardly distinguishable. Hindwing similar to that of males. Both sexes have set of three sinuous dark median lines which arise at common point at anal angle of hindwing and transgress costal margin of forewing. Wing shape of *wellingi* clearly different from that of *pellenia* and *morelia* (Fig. 2).

Other maculation. Thorax dorsally off-white, ventrally dark brown, completely surrounded by heavy black line. Tegula and head essentially concolorous with forewings. Palpus black on segment 3, but segments 2 and 1 mixture of light and dark brown.

Abdomen typical for genus, with dorsal area similar in color to forewings, with distinct, full-length, medial black line; laterally black with large yellow patch on segments. Obsolescent sixth spot, more noticeable in females, sometimes evident. Below and between each yellow patch are small, narrow, white intersegmental bands. Ventral surface off-white with brown scales throughout and usually with medial row of 1 to 4 small black spots.

Genitalia. Genitalia of *pellenia* have been illustrated in Rothschild and Jordan (1903) and Mooser (1940) and are sufficiently different not to be confused with those of either *morelia* or *wellingi*.

In *wellingi* (Fig. 3) apex of sacculus serrated and sometimes narrower than in *morelia*. Process of sacculus acuminate and curved inward more in *wellingi*. Hooked apex of gnathos minimal, unlike that of *morelia*, which has pronounced hooked apex. In female of *wellingi* (Fig. 4), lamella postvaginalis large and posterior margin only slightly indented. Lamella postvaginalis of *morelia* (Fig. 5) reduced in size and posterior margin strongly emarginate, unlike *wellingi*.

Flight period. Adult specimens have been taken each month from 2 April to 2 November, the greatest number being recorded during June.

Types. HOLOTYPE ♂ (Fig. 1) Nuevo X-cán, Quintana Roo, MÉXICO. 27 Sept. 1981, E. C. Welling M. collector. USNM type no. 100721. ALLOTYPE ♀, same locality, 27 July



FIG. 4. Genitalia, *Manduca wellingi*, female.

1979, E. C. Welling M. PARATYPES: Same locality, 1 ♂, 1 ♀, 2 Sept. 1960, 1 ♂, 2 July 1963, 1 ♂, 1 ♀, 15 Aug. 1963, 1 ♂, 6 June 1967, 1 ♂, 9 June 1967, 1 ♂, 29 July 1970, 1 ♂, 12 June 1971, 1 ♂, 14 June 1971, 1 ♂, 25 Sept. 1975, 1 ♂, 10 June 1974, 1 ♂, 12 Sept. 1974, 1 ♂, 5 June 1975, 1 ♂, 1 Nov. 1976, 1 ♂, 15 June 1977, 1 ♂, 15 July 1977, 1 ♂, 24 Aug. 1977, 1 ♂, 15 July 1979, 1 ♂, 2 Aug. 1979, 2 ♂♂, 5 June 1980, 1 ♂, 10 June 1980, 1 ♂, 18 June 1980, 1 ♂, 20 June 1980, 1 ♂, 9 July 1980, 1 ♂, 1 Aug. 1980, 1 ♂, 2 Aug. 1980, 1 ♂, 15 Aug. 1980, 1 ♂, 28 Aug. 1980, 1 ♂, 29 Aug. 1980, 3 ♂♂, 1 Sept. 1980, 1 ♂, 2 Oct. 1980, 1 ♂, 1 Apr. 1981, 1 ♀, 5 Apr. 1981, 1 ♂, 25 Apr. 1981, 1 ♂, 27 Apr. 1981, 1 ♀, 4 June 1981, 1 ♂, 9 June 1981, 1 ♂, 12 June 1981, 3 ♂♂, 18 June 1981, 1 ♂, 1 ♀, 22 June 1981, 1 ♂, 1 ♀, 25 June 1981, 1 ♂, 26 June 1981, 1 ♂, 1 ♀, 28 June 1981, 2 ♂♂, 29 June 1981, 1 ♀, 28 June 1981, 1 ♂, 29 June 1981, 1 ♂, 1 ♀, 1 July 1981, 1 ♂, 3 July 1981, 1 ♂, 7 July 1981, 1 ♂, 9 July 1981, 1 ♂, 20 July 1981, 1 ♂, 30 July 1981, 1 ♂, 19 Aug. 1981, 1 ♂, 13 Sept. 1981, 2 ♂♂, 17 Sept.



FIG. 5. Genitalia, *Manduca morelia*, female.

1981, 1 ♂, 20 Sept. 1981, 1 ♀, 22 Sept. 1981, 1 ♂, 1 Oct. 1981. Tintal, Quintana Roo, México, 2 ♂♂, Sept. 1976. Chetumal, Quintana Roo, México, 1 ♂, 11 May 1977, 1 ♂, 12 May 1977. Tikal, El Petén, GUATEMALA, 1 ♂, 18 July 1981.

Holotype and allotype deposited in the U.S. National Museum of Natural History; paratypes in American Museum of Natural History, British Museum of Natural History, Universidad Central de Venezuela, Instituto de Biología, México, D.F., México, and in the collections of E. C. Welling M. and V. A. Brou.

ACKNOWLEDGMENTS

I wish to thank Dr. D. C. Ferguson, Systematic Entomology Laboratory, USDA, Washington, D.C. for manuscript review and helpful suggestions. Special thanks go to Sr. E.

C. Welling M., Mérida, Yucatán, México for supplying the entire series of specimens of this new species.

LITERATURE CITED

- DRUCE, H. 1894. Ann. Mag. Nat. Hist., series 6, 13:169.
GEHLEN, B. 1931. Ent. Zeitschr. Frankfurt a. M. 41:201.
HERRICH-SCHÄFFER, G. A. W. 1864. Ausl. Schm. p. 50.
MOOSER, O. 1940. Anales Escuela nacional ciencias biologicas (Mexico) 1:407-495.
ROTHSCHILD, W. & KARL JORDAN. 1903. A revision of the lepidopterous family Sphingidae. Novitates Zoologicae 9(supplement).